The Excavating Engineer

Vol. 19 NOVEMBER 1925 No. 11

Rock Cut Stone Company's Syracuse, New York, Plant

Performance of Caterpillar-Mounted, Railroad-Type Shovel in a Limestone Quarry, Together with Description of a Modern Hillside Plant

IN the October 1924 number of *The Excavating Engineer* we published a brief description of the Syracuse, New York, plant of the Rock Cut Stone Company, with special reference to the performance of the Bucyrus 78-C caterpillar-mounted, railroad-type shovel, which at that time had been in operation for approximately six months. The performance of this machine over an added year has been sufficient to warrant our publishing a further description of these operations, which we believe should prove of unusual interest to quarry men and to all those interested in operating caterpillar-mounted, railroad-type shovels.

The Rock Cut Stone Company, because of the fact that it operates both crushed stone and sand and gravel plants, dominates the market for these particular materials in their territory. This company has three plants: one at Auburn, New York, which produces 1500 tons of crushed stone daily; a sand and gravel plant at Bollin, New York, with a daily production of 1200 tons; and the largest of the three, a most up-to-date installation at Syracuse, New York, which has an output of 3500 tons daily. The Auburn plant is operated by three Marion shovels, a Model-51 railroad-type machine and two ¾-yard revolving shovels. The Bollin plant is operated by a dragline scraper.

Our article deals with the operation of the Syracuse plant. This is particularly interesting, not only because of the fact that it is a very efficiently laid-out hillside operation, by means of which it is unnecessary to elevate any material, but because of the interesting application of caterpillar mounting to their principal rock producer, a 78-C Bucyrus.

The quarry face is about 1600 feet long, semi-circular in shape, with an average height of 50 feet. Very little stripping is required, as the rock in general is an outcrop. Stripping is only necessary, therefore, where there are pockets of loam. This is handled by a power scraper and by hand.

There is practically an unlimited deposit of stone available. This is drilled by two Keystone well drills. These drills make 6-inch holes from 46 to 56 feet in depth, the average charge being

Preparations for the Big Blast

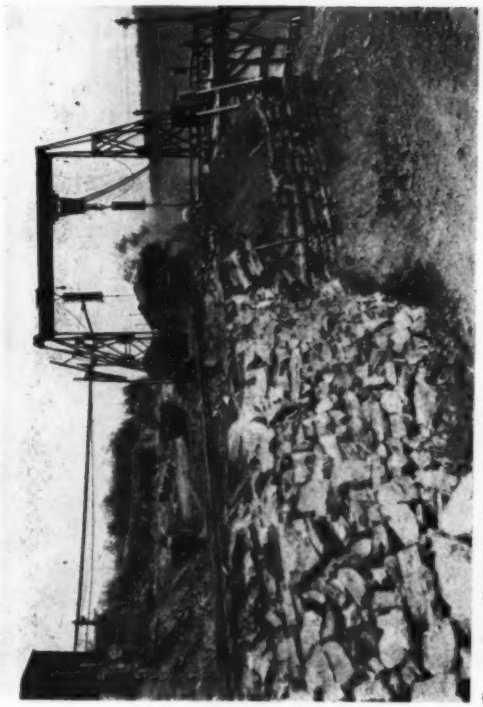
400 pounds of dynamite. The practice is to blast the entire face before operations start in the spring. This supplies enough stone for about two-thirds of the season. Further blasts are then made as requirements are needed. It is attempted not to carry over any blasted rock into the next season.

Shovel Operation

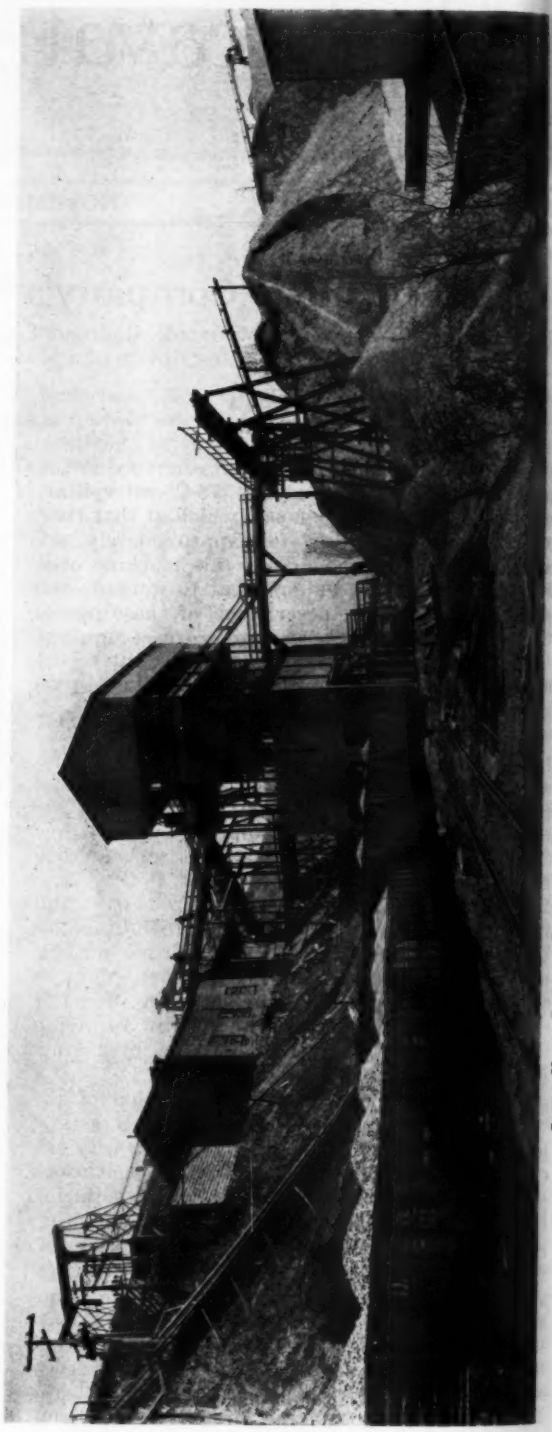
The rock is loaded by three steam shovels, a 78-C Bucyrus mounted on caterpillars equipped with a 3-cubic-yard dipper, and two Marion

Part of the Stone Shot Down in the Large Blast Illustrated on the Opposite Page

Approach to Screen House



Approach to Initial Crusher. The Air Hoists at the Right Are Used to Dump the Cars.



Screen House Conveyor System and Car Handling Facilities at the Pit of the Sand and Gravel Plant

Model 51 shovels with 2-yard dippers. These last two machines are mounted on traction wheels. The rock is taken to the crushing plant by four trains, which serve two shovels, one of the Marions being kept in reserve and used as required. The cars are one-way type with 8-ton capacity. 10 x 16 Porter locomotives are used.

Advantages of Caterpillar Mounting

The Bucyrus shovel was put into operation in March 1924, and during the year and a half of its operation, up to the time this article is written, it has definitely proven the advantages of the caterpillar mounting for quarry operation, in which the use of these caterpillars has effected a considerable saving, due to the fewer number of pit men required, the increased production, and the decreased cost per ton. Only one pit man is being used with the shovel. The output has been increased from 10 to 15% according to Mr. A. G. Seitz, secretary and general superintendent, and the digging time saved has averaged between 10 and 15%. It has been found that the shovel has undoubtedly effected other savings and economies, which are difficult to estimate on account of its ability to run away from slides and back away from blasts.

One striking advantage is the time saved in moving the shovel back to a new cut after it has completed an old one. Of course, the saving in time varies considerably, but the Rock Cut Stone Company has turned and moved this big machine the entire length of the 1600-foot face in two hours. The time required on a shovel mounted on railroad trucks is at least one day under the most favorable conditions. Further advantages may be summarized as steadier operation, the ability of keeping the proper distance from the ledge for the best operation, and, as stated before, the ability to move back quickly in case of slides falling in the pit, and quickness and simplicity of putting shovel in a position to continue loading.

Description of Plant

In a recent issue of *Pit and Quarry* the crushing plant was well described. We quote as follows from this article:

"The plant is a hillside operation, and the initial crusher, which is a 36-inch Type N Allis-Chalmers, is set below the quarry floor. The trains of quarry cars are hauled on a level with the quarry floor to a point above the initial crusher and dump with an air hoist. The stone coming from the initial crusher is passed through an 84-inch Allis-Chalmers scalping screen. The fines up to ¾-inch are conveyed to Hummer screens for finishing. The intermediate stone up to 2¾-inch is conveyed to the screen in the screening house. The oversize is conveyed to secondary crushers, two of which are 14-inch Traylor crushers, and the third a No. 4 Allis-Chalmers. After passing the secondary crushers the stone is conveyed to the screen house. The finished product from the 84-inch scalping screen is conveyed to the screen house on the same conveyor that transports the stone from the secondary crushers. The screen house is equipped with two 60-inch by 20-foot Traylor revolving screens, and also Mitchell & Hummer vibrating screens. All stone from the two 60-inch screens which passes ¾-inch is finished by passing over a Mitchell & Hummer vibrating screen. There is also a Sturtevant moto-vibro screen in the screen house. The screen house is a steel building, and the lower part of the building has not been closed in. This arrangement allows the dust to be blown out, and in general is an excellent layout, as the dust is not confined in the building.

"There are eight concrete bins for holding the different sizes of stone, with a capacity of about 1000 tons. Railroad tracks run directly under these bins. There is a double track on two sides of the bins, with room in back of the bins for holding 30 cars. These cars are dropped by gravity for loading and for storage. Truck loading is arranged for on one side of the bins, and a truck scale has been installed to weigh trucks leaving the plant. A conveyor system is used in disposing of the surplus dust. This arrangement is shown in one of the illustrations accompanying the article. There are no storage facilities except for the ¾-inch stone, which is stored by conveyor method in ground storage. Some of the belt conveyors in the plant are Robins conveyors and others are Stephens-Adamson conveyors. There are no elevators in the plant.

"Among the outstanding features of this plant are the shipping facilities. With ample storage space for cars, and an efficient loading arrangement, cars can be handled with ease. The stone can move as fast as it is ready. There is really no need for storage bins. The trucking arrangement does not in any way interfere with the loading of cars."

It has not been necessary to elevate the material at any time, although, of course, conveying has been necessary, which in all cases is practically horizontal. As may be seen from our illustrations, it was impossible to utilize gravity as much as in some other hillside plants, on account of the weight of the deposit and the railroad shipping facilities. The result, however, is a most modern economical crushed stone plant, producing an excellent type of stone for railroad ballast, road and building constructions.

W. L. Sporborg is president and general manager; A. G. Seitz, secretary; J. F. Nash, treasurer; and H. R. Cox, superintendent, in charge of operations.

Placing a pile. Note the water in the excavation and the suction pipe and hose in the immediate foreground. A Novo pump is used to keep the excavation dry.

Driving a pile with a two-ton steam hammer suspended from the ¾-yard bucket of a clamshell excavator. M. B. Markland Company of Atlantic City have obtained very good results with this rig.

Foundation Work in Atlantic City with a Clamshell Excavator

Description of Three of M. B. Markland's Contracts for Foundation Work on Which a Caterpillar-Mounted Clamshell Machine Performed the Triple Duty of Excavator, Pile-Driver and Crane

THE well-known contractor, M. B. Markland, of Atlantic City, New Jersey, has used his clamshell excavator to excellent advantage on contracts calling for demolition, excavation, driving of piles, and the final capping of the piles with concrete. Three of these jobs are good examples of the dispatch with which the work was handled and will serve to illustrate the method used.

A Contract for Haddon Hall Hotel

Last year Mr. Markland obtained the contract for work on the foundations of an addition to the Haddon Hall Hotel. This work included excavation, driving of cluster piles and the placing of concrete capping to support the structural work. After completing a section of the digging, the machine was called into duty as a pile-driver. Both placing and driving of piles was accomplished without even removing the bucket. A pile was placed and held by men with poles, while the machine swung back and picked up a two-ton steam pile hammer. This hammer, suspended from the bucket, drove the piles to a penetration of sixteen feet through wet, packed sand. When all piles for one section were driven, the capping was poured and the excavation begun on the next section.

In pouring the concrete, Mr. Markland's organization also made good use of the clamshell machine. Instead of placing the concrete mixer permanently, and wheeling the concrete in carts, they picked up the concrete mixer with the crane and set it alongside the footing to be poured. The dry aggregate was handled with the crane, the mixer discharging directly into the forms. This method meant a saving of several men. This job included the removal of 2000 cubic yards of material, the driving of 1800 piles to a penetration of sixteen feet, and the placing of 800 cubic yards of concrete. The work was completed in twenty working days.

The Foundation for Addition to Chalfont Hotel

Another similar contract called for the foundation work on an addition to the Chalfont Hotel. This job, however, included the demolition of two three-story brick buildings. The roofs of

M. B. Markland Company's Clamshell Excavator in Operation on the Foundations for an Addition to Haddon Hall Hotel, Atlantic City

these buildings were removed by the wrecking crew, and the clamshell excavator was used to tear down the walls and load the material into trucks. The rest of the work was carried on in exactly the same manner as the work on the Haddon Hall extension. The contract called for 3500 cubic yards of excavation, 300 piles driven to a penetration of sixteen feet, and the pouring of 1200 cubic yards of reinforced concrete in addition to the demolition of the buildings. This job was completed in twenty-eight working days.

St. Dennis Hotel Extension

This job was very much like the first described, and was handled in exactly the same manner. The contract time allowed twenty-eight working days, and the work included 4200 cubic yards of excavation, driving 1600 piles (16-foot penetration) and placing 1100 cubic yards of concrete. The contract time was beaten by five days; the job was completed in twenty-three days.

Equipment

The clamshell excavator was a Bucyrus 20-B steam-driven, caterpillar-mounted shovel, equipped with a 35-foot boom and ¾-yard Hayward bucket. The steam hammer used was a two-ton Meckeenan Terry; steam was supplied for its operation from the boiler of the crane, by removing the safety valve and replacing it after interposing a tee. A pipe was run down one of the front A-frame legs, and a shutoff valve and hose coupling provided just in front of the swing engine.

Crossing an Uncertain Stream Bed with a Dragline Excavator

The Taggart Construction Company of Cowley, Wyoming, recently had occasion to move their Bucyrus 30-B gas-driven dragline from one part of the Cowley Drainage District to another. The machine was used in constructing open drains, and it was necessary to move it about six miles.

General View of "Wash" on Cowley Drainage District, Showing Taggart Construction Company's Bucyrus 30-B Dragline Climbing Out of Stream Bed.

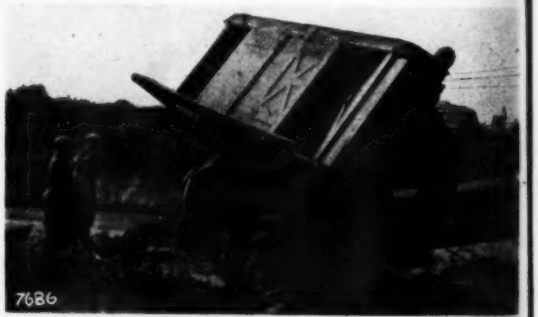
Near the city limits of Cowley the dragline had to traverse a "wash" or shallow gulley formed by the erosion of a stream's flood waters.

The path of the excavator lay down over the bank into the "wash," across 200 feet of marshy ground, over an eight-foot bank into a stream twelve feet wide and two feet deep, up another eight-foot bank and a short stretch of marshy ground, only to be confronted by a fifty-foot climb.

The machine descended into the shallow gulley, and crossed the first stretch of marshy ground on pontoons, and reached the bank of the stream. The stream banks were composed of "gumbo," a clayey soil resembling adobe and thoroughly unsuitable for constructing a fill, particularly with the amount of water in the stream.

Crossing was attempted on pontoons, and everything went well until the opposite bank was reached and the pontoons sank in the soft stream

Another View of the Dragline After Settling of the Stream's Treacherous Bed Had Tilted the Machine Until the Caterpillars Lost Traction.



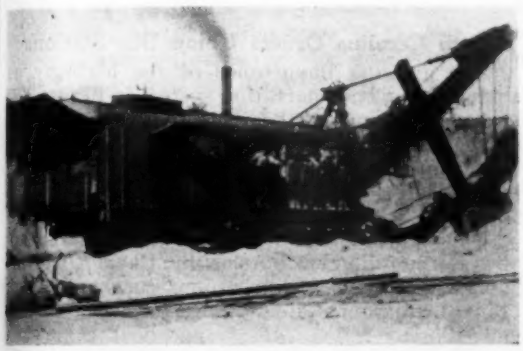
A Close-up of the Machine, Showing the Manner in Which Pontoons Were Fastened to Caterpillar Links to Secure Traction

bed, tilting the machine until the caterpillars lost traction on the wet wood. Things looked rather uncomfortable until the caterpillar treads were fastened to the pontoons with pieces of cable. After this was done the machine came out under its own power without further difficulty. We are indebted to Harry B. Littig, engineer in charge for this interesting account.

Building a Yard for the Florida East Coast Railway

Hall Construction Company of Macon, Georgia, Move a Record Yardage During the Month of August on Their Work at Bowden, Florida

THE Hall Construction Company of Macon, Georgia, have a contract with the Florida and East Coast Railway for the grading of a freight yard at Bowden, Florida. The yard is to be a complete freight terminal including receiving, classification and repair tracks; it is to have a total of 43 miles of track and will be 3 miles long and cover an area of 181 acres. The Hall Construction Company's contract, which was started on June 15th, is going rapidly ahead and will probably be completed November 1st, 60 days ahead of time.



The shovel and pit crews pose for their picture. The shovel is set caterpillar mounted and a pit crew of five is therefore used. M. L. Weisgarber is engineer, H. H. Castleberry, cranesman, and Charlie Giles, fireman.

The land on which the yard is being built is all below grade and calls for an average fill of about 2 feet. The material is all taken from a sand pit about 2 miles east of the southern end of the yard. The cut is approximately 2200 feet long and the average height 16 feet.

The Hall Construction Company are using on this work one of their Bucyrus railroad-type shovels, a 70-C, which for this job they have equipped with a 3½-yard dipper and 1⅜-inch hoisting chain. The material is sand; the contract calls for 300,000 cubic yards excavation, of which approximately 225,000 yards have been moved at the time of writing.

A Train of Fourteen 12-yard Western Cars Drawn by a 55-ton Rogers Locomotive at the Pit

A Record Output

During the month of August last the contractors moved the exceptionally high yardage of 75,651.3 cubic yards, this in spite of the fact that it was necessary to change shovel engineers three times during the month and a day was lost owing to one of these changes. From August 1st to 9th inclusive the shovel was running ten hours a day; from the 10th to the 31st inclusive the machine was in operation eleven hours per day; work was done on a six-day week basis — no Sunday work. This output certainly speaks well for the equipment, the men operating it, and the organization whose careful planning and co-ordination made such a record possible.

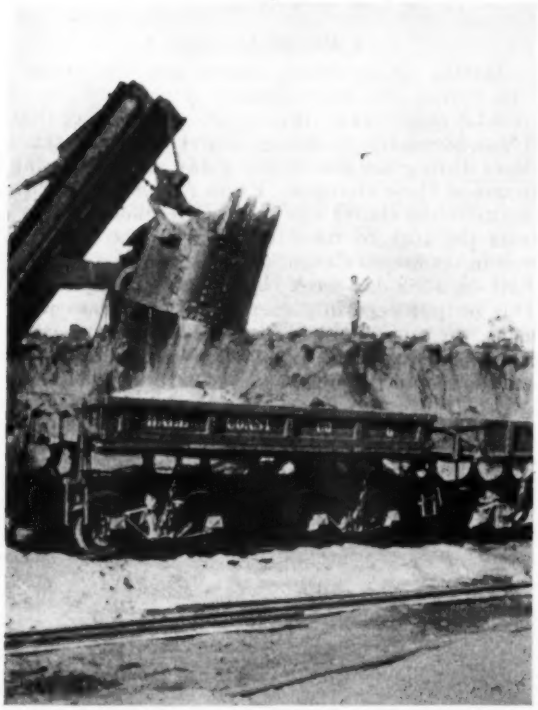
The Equipment and Method of Operation

The hauling equipment which served the shovel consists of forty-three standard-gauge,

The face of the sand pit from which the material for the yard was obtained. This face averages from 16 to 20 feet high and is 2200 feet long.

twelve-yard Western dump cars, handled by two 55-ton and two 60-ton Rogers locomotives. The average haul from pit to fill was about three miles. Fourteen cars composed each train and the greatest grade over which the loaded train was hauled was 0.5%. The depth of fill, during the month of August, averaged not more than two feet. J. D. Moore and Company of Jacksonville,

Florida, who had the contract for laying the track in the yard, took care of dumping the dirt trains as they reached the fill. This company built tracks on grade on twenty-six-foot centers, and then dumped and spread to grade from these so that laying another track halfway between the original two left them with three of the yard tracks finished. The spreading was done with two Oliver spreaders.



The operator who puts an extra large dipper on a shovel designed for a smaller one usually runs into trouble. In this case, however, the digging is not hard, and the output has been very satisfactory.

J. L. Crittenden is superintendent on the job for the Hall Construction Company and has his office at South Jacksonville. J. H. Hall is President of the company; A. B. Domingos, Vice-President and General Manager; N. O. Parrish, General Superintendent. J. H. Morgan is resident engineer for the Florida East Coast Railway Company; W. G. Brown of St. Augustine, maintenance of way engineer.

The port of Algiers is being rebuilt. This harbor has remained very nearly just as it was when the French took possession of it from Hussein Dey, nearly a hundred years ago.

The present project, now under way, includes work which will not be finished until 1938, and will cost 153,600,000 francs.

All Western Road Show in San Francisco

The All Western Road Show will be held in San Francisco, November 9th to 14th, 1925, under the auspices of the Western Construction Equipment Distributors. Preparations are being made for 10,000 visitors, and large delegations of contractors, supervisors, county commissioners and engineers are coming from every point in the Western Third of the country. Over 100,000 square feet of space have been reserved. The manner in which the industry has responded with support of the show has far exceeded the fondest hopes of its founders. It will be the first large show of road-building, excavating and quarry equipment ever held in the West. Two years of missionary work by Western Highways Builder is largely responsible for this show.

North Carolina Orders Union Bus Stations

The growing importance of the highway as a part of our transportation system is illustrated in a striking manner by the recent action of the State Corporation Commission of North Carolina in ordering union stations to accommodate the rapidly expanding traffic throughout the state.

This order was effective August first and applies to the following: Asheville, Charlotte, Durham, Fayettsville, Goldsboro, Greensboro, High Point, Lexington, Raleigh, Salisbury, Statesville, and Winston-Salem. It is specified that each "station shall be located as may best serve the public, and of such size and capacity as the number of passengers using such stations shall justify."

The order calls for a meeting of the various carriers entering each city to select a location, and to name a manager for the station who shall not be financially interested in any of the lines. The combined lines will pay the expenses for maintaining the station. The vehicles will hereafter depart from such stations on schedule time. The station manager will be given complete charge of ticket sales, checking and loading of baggage. Facilities will be provided for the comfort of passengers.

In issuing the order the Commission stated: "Whereas the maintenance of separate motor vehicle passenger stations in the several cities is expensive to the carriers and misleading and bewildering to the traveling public, it has been determined by the Commission that the convenience of carriers in serving the public and the more efficient transportation of passengers by motor vehicle carriers generally require the establishment of union stations in certain cities and towns for use by all carriers to, from and through such cities and towns."

Douglas, Buchanan & Crow Using a Diesel-Electric Machine on a Ditch Job

The well-known contractors, Douglas, Buchanan & Crow, of Shreveport, Louisiana, are at present engaged six miles north of Alexandria, Louisiana, on a contract for the Red River Atchafalaya, and Bayou Boeuf Levee District.

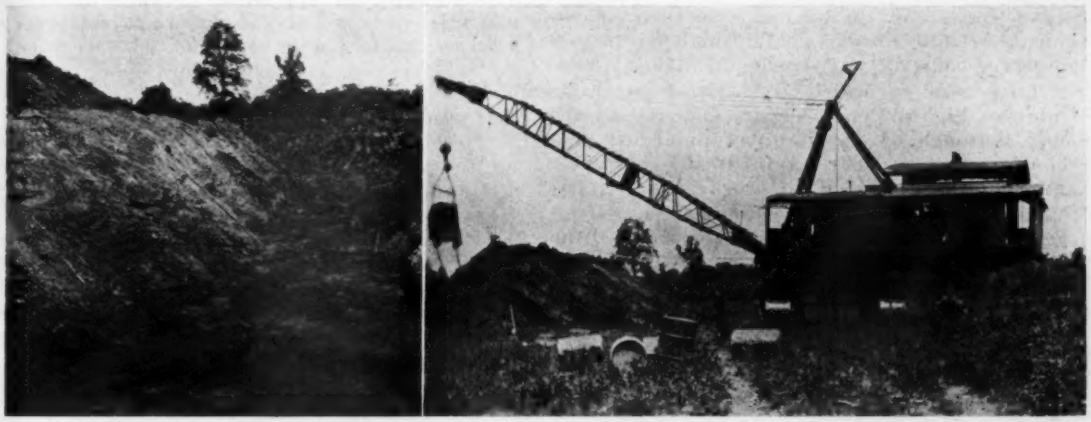
They are using on this work a Bucyrus Class-14 dragline excavator equipped with a seventy-foot boom and a two-yard bucket, which has been converted from a steam-driven to a Diesel-electric drive machine. This dragline is digging a drainage ditch, which will turn water out of a bayou that has been flowing into the Red River, and a levee adjacent to the river. The machine will move 134,000 cubic yards in about a mile and three-quarters. The ditch will have a 21-foot bottom, a 1 to 1½ slope, and a depth of about twelve feet. The width of the berm is 25 feet, which necessitates two trips through, up one side of the ditch and down the other.

From the 1st to the 16th of May, inclusive, this machine moved 34,000 cubic yards, working double shifts, which shows a monthly basis of over 60,000 yards. The dragline is equipped with a 125 H. P. semi-Diesel engine, running at 325 R. P. M. It is burning two and a half barrels of 34-38 degree oil per double shift, costing four cents a gallon at the machine.

In connection with this drainage ditch, this machine has already put up over ten miles of levee, averaging about eight feet in height. As soon as the machine is finished on this ditch, it will be put back on the levee, which will consist of about seven miles more. The total yardage, consisting of ditches and levee on this job, will run over a million yards. This levee is known as the Rapides Island Levee, and runs along the banks of the Red River.

The work is in charge of J. L. Buchanan, with field office at Alexandria, Louisiana.

Roy Green and M. F. Hawn are operating the machine.



To the right, Douglas, Buchanan & Crow's Bucyrus Class-14 Diesel-electric dragline at work on a ditch near Alexandria, Louisiana. It is shown backing away from the ditch. To the left is the ditch 60 per cent completed but dug to required depth. The berm on the left is 25 feet wide, which required two trips through.

Electrified Construction Camp

James O. Heyworth, general contractor, who is working on a large contract near Royalton, Minnesota, has the distinction of operating a completely electrified camp.

Their power plant consists of a 100 k. w., 3-phase, 60-cycle, 460-volt, 0.80 p-f. generator direct connected to a semi-Diesel oil engine, and a 7½ k. w. 125-volt, D. C. belted generator for lights.

The lighting load consists of lights in twenty-five houses, office building, dining hall, machine shop, carpenter shop, flood lights and other lights used on the job.

The power load consists of machine shop tools, hoist and swing motors on a derrick, a cement hoist, cement tower pump, cement unloader, cement conveyor, two concrete mixers, water supply tank pump, and a coffer-dam pump.

Their average power load is 95 kv-a, with a 150 kv-a peak. The connected load is 173 h. p.

The only unelectrified equipment on the job are one or two additional derricks, two dragline excavators and an industrial type locomotive.

These would demand a larger power plant but present no great difficulties in application.

Can Florida Beat This?

Two years ago Captain J. C. Shepard, of Gallipolis, purchased Raccoon Island, in the Ohio River near Gallipolis, for $350. He sold it to Captain Moses Epling, of Point Pleasant, for $12,500. This island was recently purchased by the Union Sand and Gravel Co. of Huntington, West Virginia, for $40,000.

The Excavating Engineer

A Monthly Publication Devoted to Excavating and Allied Subjects

REGULAR SUBSCRIPTION: $1.00 a year for 12 numbers.

SPECIAL SUBSCRIPTION:
Upon application on card inserted in this number, subscriber's name will be placed on Rotating List, whereby he will receive The Excavating Engineer frequently (not regularly) free of charge.

THE
EXCAVATING ENGINEER PUBLISHING CO.
South Milwaukee, Wisconsin
Printed in the U. S. A.

Cost of Earthwork in Highway Construction

We are glad to call attention to a series of articles that are being published by the United States Bureau of Public Roads in their official journal *"Public Roads,"* dealing with the factors governing construction costs in the highway field.

These studies, which are written by J. L. Harrison, highway engineer, are undoubtedly the most thorough of the kind yet published, and should prove extremely helpful to the contractor and engineer engaged in this work.

In his first article Mr. Harrison points out that based on the closest available estimate from $100,000,000 to $150,000,000 is being expended annually in the movement of subgrade materials as an incident to highway construction. It is apparent, therefore, that any information which will improve efficiency in this field should receive careful consideration by all concerned.

Six of these articles have so far appeared. The first is a study of the effect of haul on the cost of earthwork, with special reference to team time. The second deals with the cost of grading with fresnos, with suggestions as to common losses and how to avoid them. Causes of short loading are cited, and the value of consistency of performance is emphasized. Losses due to wet weather and bidding are discussed, and suggestions are given as to how such losses may be avoided. Examples are given of methods of scheduling highway grading, with illustrative tables and sketches.

The third article covers the economical use of wheel scrapers, which is also most detailed in its study of methods of procedure, time schedules and costs.

The remaining three articles in the series take up the study of the wagon and the elevating grader. The articles are most practical, and are an invaluable contribution to this most important problem.

It is hoped that this series will be continued, to include that most important phase of highway work, shovel operation.

Why Quit Work in Winter?

Is there really any sound reason for not working excavating machinery the year round?

Herbert Hoover appointed a committee to investigate the winter idleness of the construction industry. It reported, "Custom, not climate is mainly responsible for seasonal idleness in the construction industries." Is it not custom instead of climate that leads so many excavating contractors to board up their equipment and store it for the winter?

The wages of the men whom you employ for nine months must be sufficient to support them and their families for the entire year. The amount you earn in the summer must pay the dividends for the entire year, or, if you have borrowed on your equipment, the interest on that loan. In other words, you give your men a three months' vacation with pay; and, what is equally as bad for you, you give your *money* a three months' vacation. Considering this, can you say that winter excavation is too costly?

Here is another angle. When you close down for the winter, how many of your best men go and hunt another job and never show up again? How much does that cost you?

It is not fair to contend that the digging in winter is too difficult, as the modern shovel will go through frozen ground, and where the frost is very deep, a little dynamite will overcome the trouble. If you feel that the use of steam equipment is a nuisance in the winter, the Diesel engine, the gasoline engine or the electric motor is ready to run your shovel.

Unquestionably the actual operating costs will be higher in winter than they are in summer. Without a doubt the equipment must be watched more closely in cold weather and the work must be more carefully planned. The profit to the contractor on winter work comes partly from savings on overhead and partly by maintenance of organization.

Think well before you quit work for the winter.

The Iron Industry in 1924

According to the Department of Commerce of the Bureau of Mines, considerably less iron ore, pig iron and ferro alloys were produced and shipped in the United States in 1924 than in 1923.

According to figures compiled by W. Davis of the Bureau of Mines, the iron ore mining in 1924 amounted to 54,267,419 gross tons a decrease of 22 per cent as compared to 1923. Of the 20 states producing iron ore in 1924 only five, Alabama, Missouri, Ohio, Utah and Washington, contributed more ore than in 1923.

· FIELD NOTES ·

Oil Grooves

Oil grooves in bearings are absolutely necessary if the oil is to be properly distributed and retained in the bearing.

However, in placing oil grooves one must have a knowledge of what he is doing.

In the first place these grooves provide a means of holding oil in the bearings. If run to the end of the bearing, they form troughs for the flow of oil out of the bearing, which answers the purpose of a flood system, but for the ordinary machine bearing with oil hole or cup it would be unsuccessful.

The next reason for an oil groove is to distribute oil so that practically the whole length of the bearing is coated with oil as it passes the groove.

Oil grooves should be so planned that as the oil is nearing the end of the bearing it will be caught and returned again to the center of the bearing.

This question is receiving the attention it deserves in our modern manufacturing establishments. In fact, machines are provided for cutting oil grooves.

When rebabbitting bearings in the field it is well to duplicate the original grooves.

Be generous with the width and depth of these grooves. Make the width of the groove .01 of the diameter of the shaft and add .1 inch. For a 4-inch shaft this would mean a width of 4 inches x .01 + .1 inch, or .14 inch, say slightly over ⅛ inch, and the depth may be made one-half the width.

It is important to round the edges, as this insures the flowing or "wedging" of oil from the groove into the "space" between the rubbing surfaces. Sharp edges on oil grooves act as scrapers to scrape the oil off the bearing instead of putting it on.

Babbitting Bearings

When babbitting a bearing it is well to have both the bearing and the shaft warm before pouring the babbitt.

This may be done with a blow torch, or by laying a chunk of hot iron on the shaft.

Safe Loads for Double Sling Chains

The S. G. Taylor Chain Company have prepared a chart giving the safe loads for double sling chains when made up of their Taylor-Mesaba chain. This information is in the form of a blue print, part of which is reproduced below, and which will be sent to anyone requesting it from the manufacturer at 140 South Dearborn Street, Chicago, Illinois.

The blue print further offers the following suggestions to be followed in the use of double sling chains:

1. Always make sure that the load is evenly distributed between the two legs.

2. Remember that clean chain lasts longer and keep your chain as clean as possible.

3. Keep chains free from twists and knots.

4. Have a regular time for inspecting your chain and see that it is inspected regularly.

5. Always bear in mind that each time a chain is overloaded, it is weakened for the next job. Don't overload your chains.

The sixth point is one which can never be over-accented. It is a summary of the other five suggestions, and it is well to bear in mind, not only in respect to the use of chain but in all your other work. It is summed up in two words "Safety First."

Sketches showing the division of load between the two legs of a double sling chain, for different angles between load and chain.

SIZE OF CHAIN	WHEN USED AT 60° ANGLE	WHEN USED AT 45° ANGLE	WHEN USED AT 30° ANGLE	WHEN USED AT 20° ANGLE	WHEN USED AT 15° ANGLE	WHEN USED AT 10° ANGLE	WHEN USED AT 5° ANGLE
	15580	12700	9000	6150	5550	3200	1560
	22900	18700	13250	9050	6850	4730	2300
	29400	24000	17000	11600	8790	6070	2960
	37200	30500	21500	14700	11100	7670	3750
	48500	37600	28000	19150	14500	10000	4900
	60400	49400	34900	23900	18000	12400	6000
	70500	57500	40700	27800	21000	14500	7100
	82100	67000	47400	32400	24500	16900	8200
	94900	77500	54800	37500	28000	19600	9500
	102500	83700	59200	40500	30600	21100	10300
	25300	103900				2680	

Chart Showing Safe Loads for Taylor-Mesaba Double Sling Chains

Excavation in the Far East

1 and 2. Concrete Constructions Limited of Sydney, New South Wales, Australia, excavating for the foundations of a new plant at Geelong, Victoria, for the Ford Manufacturing Company of Australia. The steam shovel is a Bucyrus 20-B mounted on caterpillars and equipped with a ¾-yard dipper.

3. Two electric shovels in the limestone quarry of the Kandos Cement Company Limited, near Sydney, New South Wales, Australia. When this picture was taken the machine in the foreground, a Bucyrus 68-C, had been in operation for over a year, and the machine in the background, a 103-C, had just been erected. Note the transmission line towers in the background.

4. A Bucyrus 30-B 1-yard steam shovel excavating for a freight classification yard near Kobe, Japan, for the Japanese Imperial Government Railways. The machine, owned by the railway, is loaned to the contractor and operated by a self-trained operator.

5. A Class-14 caterpillar-mounted Bucyrus steam dragline reconstructing a bank on one of the canals of the Sutlej River Valley Irrigation Project in India.

6. Two Bucyrus 20-B Diesel-driven, caterpillar-mounted dragline excavators owned by the Bombay Government, Public Works Department, at work on the Lloyd Barrage and Canals Construction Project in India.

7. A caterpillar-mounted electric railroad-type shovel digging the site for a coal washing plant for the Fushun Collieries, Fushun, Manchuria. This machine, a Bucyrus 103-C, is regularly used for stripping and loading coal, and is equipped with both a 5-yard dipper for stripping and a 6-yard dipper for loading coal.

5

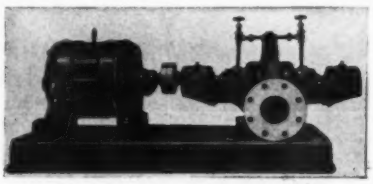
6

DEVICES YOU OUGHT TO KNOW ABOUT

Small-Sized Centrifugal Pumps Manufactured by The Wilson-Snyder Co.

The Wilson-Snyder Manufacturing Company, Pittsburgh, Pennsylvania, is putting on the market a new series of centrifugal pumps of small size to supplement their line of larger pumps which have been manufactured for twelve years.

The new pumps meet the demand for a high-grade, bronze-fitted, double suction pump, at a reasonable price. The sensitiveness usually experienced with small centrifugal pumps has been eliminated by the simplicity of design and the ruggedness of construction, proof of which is attested by the fact that the pumps during testing were frequently run out of alignment, at very high speeds, and with packing excessively tight. Even under these severe conditions the pumps functioned well, and were not adversely affected. Complication of design has been avoided, which permits emergency repairs to be made in a machine shop. It is recommended, however, that replacement parts be obtained from the manufacturer, for then the customer is assured of accurate and well-made parts and of prompt service.



Wilson-Snyder Centrifugal Pump
Driven by a Westinghouse Motor

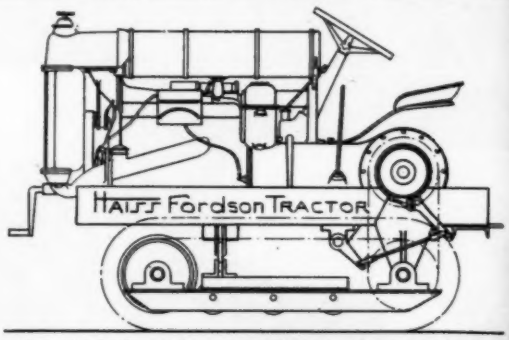
The pumps have been developed to operate with Westinghouse motors at their standard speeds of 1150 r.p.m. and 1750 r.p.m. for both D.C. and A.C. current.

A New Railroad Maintenance Machine

The Ursino machine, according to a report from New York City, will soon be placed on the market to do a variety of railroad maintenance work, such as trimming and surfacing new ballast, cleaning and resurfacing old ballast without moving tracks, and also trimming up the ballast on each side of the tracks. It is claimed that the machine can do its work faster and cheaper than men. *The American Railway Surfacing Machine Corporation, 25 Broadway, New York*, will sell the machine, which will be built for them by the American Locomotive Co. A description says it is about the size of a large box car. It is mounted on regular car wheels and its weight is about 35 tons. It is moved about by a locomotive, either alone or in connection with a work train. It is stated that the inventor of the machine is Pasquale Ursino, an Italian, who has been for a long time with the maintenance of way department of the Chicago, Milwaukee & St. Paul Railway.

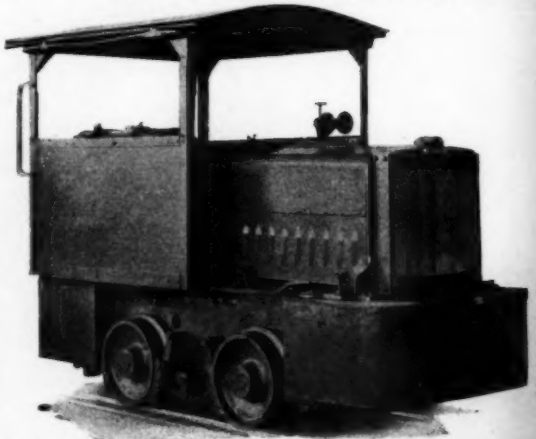
—*Manufacturers Record.*

Those who use Tractors and have found that the crawler type is more suited to their use than the wheeled type will be interested in the Haiss Fordson Tractor, made by the *George Haiss Manufacturing Company* of New York City. This traction machine is made up of a complete Fordson tractor without wheels and front axle, mounted on a crawler chassis of heavy



section steel channels. According to the manufacturer, the bearing pressure between the treads and ground is only four and one-half pounds per square inch. The weight is 4,600 pounds, and speeds from 1½ to 6 miles per hour are provided. The power at the drawbar is approximately 15 horse-power and the machine will turn in a ten-foot circle.

The *Geo. D. Whitcomb Company* of Rochelle, Illinois, has recently brought out a new 4-ton locomotive, known as Model "U. F.-4." This new machine is built to regular gasoline locomotive specifications, the general design and construction being identical with the larger sizes built by this company. It is built in all track gauges to suit the various conditions encountered. The height over the engine is 54 inches; the height over the cab



81 inches; and the length approximately 9 feet. The weight of the locomotive is approximately 8,000 pounds and has a drawbar pull of about 1600 pounds. Coil springs on each journal box make for easy riding. The machine is powered by a 4-cylinder Model S-4 Continental engine. Particular attention has been given to the cab design, with special thought for the operator's comfort. No exposed drives; pedals and levers are within easy reach.

SHOTS FROM THE FIRING LINE

Central States Notes

BY J. J. GAULT

Contract No. R-3, Broadway Avenue Relief Sewer, Grand Rapids, Michigan, has been awarded to C. A. Handeyside Construction Co., 1758 Penobscot Building, Detroit, Michigan. This work will run around $162,000.

The M. Sullivan Dredging Co. are very busy in Detroit, doing trench and landscape work, such as lagoons and canals, among the estates that border on the water of Lake Erie. They have a Bucyrus 20-B, 50-B and Class-14 now in operation, and Mr. Fraser Sullivan, who is president of the above company, advises that they can average about 1000 yards a day in trucks with the Bucyrus 20-B ¾-yard machine.

Mr. S. A. Healy has recently secured quite a large contract in Detroit, on which he has placed a Bucyrus Class-14 dragline, and we understand that Mr. Healy has all his equipment now busy, which consists of one Bucyrus 30-B shovel, one 50-B Diesel dragline, one Class-14 dragline and several trench excavators.

Illinois Notes

BY H. C. DAVIS

Mr. L. Shockweiler, 1610 Edgewater Avenue, Chicago, Illinois, has two Erie machines making an 8000-yard excavation on East Delaware Place, between Michigan Boulevard and Seneca Street.

T. M. White & Co., 2314 South Robey Street, Chicago, Illinois, have just completed a 20,000-yard excavation at Michigan Boulevard and Seneca Street, and another of about 12,000 yards at Chestnut and Seneca Streets. An Erie and a Thew shovel were used in both cases. They now have one Erie machine making a 1500-yard excavation at Seneca and Delaware Streets. Mr. John Russell is the foreman in charge of this work.

Frank Trucco Co., 1503 West 13th Street, Chicago, Illinois, has an Erie machine working on a foundation for bridge approach from Grant Park to Congress Street, and another of the same make making an excavation for a new fountain to be erected in Grant Park. Mr. Chester Goodman is the foreman in charge of this work.

Iowa and Missouri

BY W. G. PARROTTE

List-Weatherby Construction Company sublet part of their dirt work on the Kansas City sewer to Luck Bros. Construction Co.

Luck Bros. have about finished their contract for the City of St. Joseph.

Winston Bros. are making good progress on their second track work for the Missouri Pacific between St. Louis and Jefferson City.

Carmiechel-Cryder Construction Co. are operating their Bucyrus 50-B and 20-B on a double shift on the new Wabash yards at North Kansas City.

All stripping operations in the southwest field are under full steam.

New York State News

BY J. P. BURNS

Mr. W. H. Fitzgerald, 611 Press Building, Binghamton, New York, bought a new Bucyrus 20-B ¾-cubic-yard steam shovel and dragline to take care of new contract awarded by Erie Railroad Company at Johnson City. They are eliminating a bad crossing, placing the roadway under the tracks. He will use a dragline on this job, as it is necessary to throw the river bank back over 20 feet.

The Spadaccinsi Realty Construction Corporation of Tupper Lake, New York, have several jobs on their hands to finish before cold weather sets in. Their latest contract is 3.02 miles of road work in Essex County.

Owen P. Williams of Bainbridge, New York, was low bidder for a 12.42-mile road job in Delaware and Ostego Counties at an estimate of $682,389.30. Mr. Williams is becoming one of the best known contractors in the state; he has considerable equipment and has bought another shovel to take care of this work, buying a Marion 36 from Scott Bros. of Rome, New York, with which firm he was connected for over twenty years.

Frank J. Boland, who owns and operates sand and gravel banks of Johnson City, has branched out on shovel jobs; he just finished a 6,000-yard church excavation job, and is now removing a hill and filling a ravine with over 20,000 cubic yards for Chas. Johnson of the world's best known shoe manufacturing company.

Hull and Saltsman were awarded 5.42 miles of road work at an estimate of $261,304.22 in Orange County at a letting in Albany, September 25. Their office is located at Highland Mills, New York.

R. E. Maxey of Onconta lost the Delaware and Ostego County job by a few thousand dollars. They expect to be on top at the next letting. Mr. Maxey has considerable equipment and will finish his present contract in a few weeks.

H. G. Day is operating a steam shovel for Municipal Construction Company of Binghamton, New York.

Chris Hansen, 45 Glynn Avenue, Troy, New York, has a contract in Rensselaer County for two miles of road work. He was low bidder on this job at $66,624.25.

Nathan E. Young, Union, New York, will finish his last road job before the first of the year. There was some lively bidding at the letting held in Albany on September 25. The J. H. Gallup Company, Inc., won out over Dale Engineering Company of Utica, New York, by a surprisingly few dollars. On the first job Gallup's bid was $124,864.05, Dale Engineering Co., $125,034.70, a difference of $170.65; on the last Gallup's bid $120,901.80, Dale Engineering Company, $120,912, a difference of $10.20. This is the first time this year that there has been such keen competition.

Mr. W. A. Cole, 821 Winton Street, Syracuse, New York, has moved his shovel back to Syracuse from Atlantic City, New Jersey, where he had steady work all year, and is doing the excavating for the new Church Building, opposite Hotel Syracuse. Mr. Cole operates his own shovel and expects to be busy the rest of the year.

Prova Bros., 604 North Salina Street, Syracuse, New York, expect to complete the new highway through the old canal bed this year. They have a new contract in Cayuga County of five miles of road work at a cost of $240,193.35, but will not start on this job until early in the spring of next year.

Pacific Coast Notes

BY P. H. BIRCKHEAD

Contract awarded by the Nevada Highway Commission, Heroes Memorial Building, Carson City, Nevada, to Dodge Bros., Inc., 638 West 5th Street, Reno, Nevada, who bid $50,426 for grading 5.25 miles in Storey County from West County Line to Virginia City. Next lowest bid for this work submitted by Fred Coolidge, Eureka, who bid $54,203.

Bids received from following concerns by United States Engineer's Office, 725 Central Building, Los Angeles, for dredging work in Los Angeles Harbor: San Francisco Bridge Co., 14 Montgomery Street, San Francisco (low bidder), $215,718; United Dredging Co., Los Angeles, $229,657; Los Angeles Dredging Co., Long Beach, $278,775. Work will involve 1,300,000 cubic yards dredging, 55,000 cubic yards extra including over 1 foot depth.

Election was held October 12th by Big Valley Irrigation District, Bieber, Lassen County, on formation of the district. District will embrace 12,400 acres.

Plans are being made by the San Francisco Bay Terminals Co., Chancery Building, San Francisco, for reclaiming a 3500-acre industrial tract for factory sites between Belmont and Redwood City, San Mateo County, work involving filling by dredging, etc.

San Bernardino County awarded to M. S. Ross, 350 Merrick Street, Los Angeles, who bid $25,592 for grading 3.3 miles of highway from Big Bear to Fawnstin. Engineer's estimate $24,400.

Contract awarded to Utah Construction Co., Phelan Building, San Francisco, for the construction of 24 miles of railroad for the Southern Pacific Company in Siskiyou County from Deetz to Grass Lake, work involving about 2,200,000 cubic yards excavation, mostly rock.

Contract awarded to Western Dredging Co., Box 397, Wilmington, who bid $138,650, as follows, for dredging along west side of East Basin, for the Board of Los Angeles Harbor Commissioners, C. H. Spear, Manager, 1017 South Figueroa Street, Los Angeles, 890,000 cubic yards of dredging, $0.23½.

Pennsylvania Notes

BY T. H. BARRETT

Anthracite Region

October 31st marks the end of the second month of suspension of operations in this field. Indications are that the strike will continue to the end of the year as there are large stocks of coal in dealers' hands and "hard coal substitutes" are selling freely. The miners have not as yet felt the pinch of unemployment.

The Lehigh Coal and Navigation Company are experimenting with various binders to be used in making bricquettes of their smallest sizes.

Cement Region

The Lehigh Cement Region is shipping more cement than ever before. The highway contractors are taking a large proportion of this in order to complete as many sections as possible before the frosts.

R. G. Brothers of F. H. Clement & Co., Bethlehem, Pennsylvania, advises that he is clearing ground for the new Mack truck plant near Allentown. He also has a grading job for the Lehigh & New England Railroad.

In Its Third Year

and the chain has never been replaced

"The Buckeye boom can stand lots of hard usage," say Kraay & Livers, Harvey, Illinois. "The chain is strong — never replaced it. Dirt doesn't bother the alligator tread. The Buckeye apron wheel is very good."

Kraay & Livers *know* their C-15 Buckeye. This is its third year. Their average operating cost, including engineer, oil, gas and repairs, is $20.50 — and they average over 600 feet in 8 hours on trench 22 inches wide and 10 feet deep, in the hardest kind of digging.

The Newest Buckeye Chain Is Even Stronger

Manganese steel links, with manganese steel T-head pins, each using a manganese reversible bushing for taking up wear — that's the Buckeye chain construction. All parts "oversize" for extra strength and service.

Buckets are heavy electric — cast carbon steel in one piece. The box girder type boom is built up of heavy angle and plate construction.

That's Buckeye all the way through — built to "take it" in the *hardest* digging.

No wonder Buckeyes give such *good* service. Ask any owner.

The Buckeye Traction Ditcher Company
Findlay, Ohio

Manufacturers of Trench Excavators (both Wheel and Chain-and-Bucket Types), Pipe Line Trench Excavators, Tile and Open Ditchers, Back-Fillers, Pipe Screwing Machines, Curb Diggers and Clay Diggers.

There's a Buckeye Sales and Service Office Near You

BUILDERS OF TRENCH EXCAVATORS FOR [illegible] YEARS

For convenience in making inquiry use postal inserted in this number.

"How soon can you deliver?"

ASSURANCES of time of shipments and deliveries are based on actual knowledge of manufacturing and shipping conditions at our plants.

Prompt shipments of explosives are made because of the ample stocks available at plants and in storage magazines located in regions where industries require our products.

This nation-wide ability to serve industry promptly with explosives of the highest quality is only *one* of the reasons why du Pont enjoys leadership in the explosives field.

Blast with du Pont explosives

There is a du Pont explosive to meet every blasting need — to do *your* particular work *best* at *least* expense. For contracting we especially recommend:

Red Cross Extra Dynamite: 20% to 60% strength; low-freezing; fairly water-resisting; heaving and lifting action.

Du Pont Gelatine Dynamite: 25% to 90% strength; water-resisting; low-freezing; dense; plastic; less obnoxious fumes.

Du Pont R. R. P. (Judson type): 5% strength and low-freezing.

Du Pont Blasting Powder is the most widely used low explosive. It is regarded as standard everywhere. Every keg bears the orange band.

Du Pont blasting accessories give you maximum efficiency from your explosives. Make every shot *sure*—protect your blasting investment by using only du Pont accessories.

For further information about du Pont explosives and blasting accessories, please refer to Road and Street Catalog — or write to our nearest office.

Du Pont chemical engineers insure uniformity of quality by chemical control through every step of manufacture from raw material to finished product.

E. I. DU PONT DE NEMOURS & CO., Inc.
Explosives Department
WILMINGTON, DELAWARE

DU PONT

Branch Offices:

Birmingham	Ala.
Boston	Mass.
Buffalo	N. Y.
Chicago	Ill.
Denver	Colo.
Duluth	Minn.
El Paso	Tex.
Huntington	W. Va.
Joplin	Mo.
Kansas City	Mo.
Mexico City	Mex.
Miami	Fla.
New York	N. Y.
Pittsburgh	Pa.
Portland	Ore.
St. Louis	Mo.
San Francisco	Calif.
Scranton	Pa.
Seattle	Wash.
Spokane	Wash.
Springfield	Ill.

Du Pont Products Exhibit Atlantic City, N. J.

POWDER MAKERS SINCE 1802

For convenience in making inquiry use postal inserted in this number.

Philadelphia

The Pennsylvania Railroad are perfecting plans for their new station in West Philadelphia. The contract for the excavating and grading will probably be let this fall.

Southern States Notes

BY W. W. WHORLEY

Mr. Barney Cash is operating a Bucyrus 50-B shovel for the McDougald Construction Company at Highland, Florida. Joe Bennet is keeping things hot and reports the Bucyrus 50-B as easy on the fireman.

Dave Brown of Chattanooga reports business as active around the Mountain City. Dave recently journeyed into Florida and landed a nice job at Clearwater. His brother Walter is superintending this work.

W. L. Pearson of Houston, Texas, was low bidder on several million yards of flood control work in Hidalgo County, Texas, bids for which were recently opened at Edinburgh, Texas. Quite a number of large drainage contractors were present and prices were low.

Lloyd Hawk is operating a Bucyrus 20-B Diesel dragline for the Cameron County Water Improvement District No. 1 near La Feria, Texas. Mr. C. Yeary is foreman.

Mr. Frank Robertson, manager of Cameron County Water Improvement District No. 2, says that his Bucyrus 20-B gasoline and Diesel draglines are working steadily. These machines were recently moved several miles on short notice in order to throw up an emergency levee to curb the rising Rio Grande River. J. F. Wedegartner is operating the Diesel. Carl King and Tom Perkins are operating the gasoline dragline.

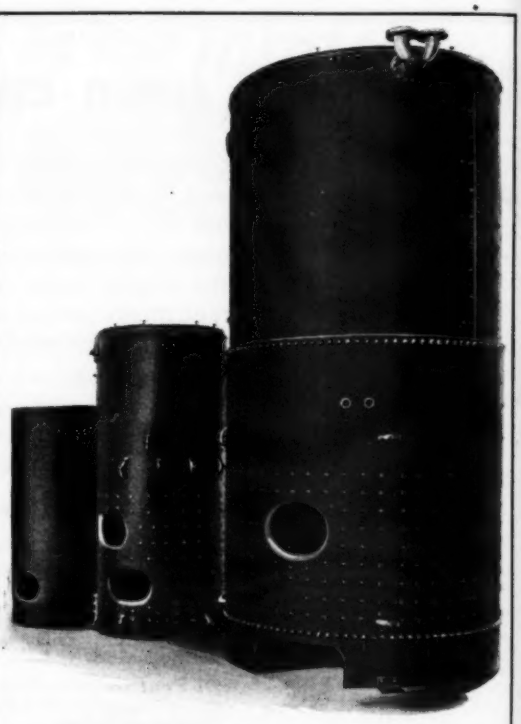
Mr. T. B. Rahn is operating a M-37 for the Crystal River Rock Company at Kendrick, Florida.

Bucyrus Tower Excavator C-6, owned by the Second District, Mississippi River Commission, with offices at Memphis, Tennessee, and working on levee enlargement a few miles from Helena, Arkansas, met with an accident on September 17th. The house on the head tower caught fire and was completely destroyed, doing considerable damage to the structural work. Repair work is now under way, and the machine should resume operations about November 1st. This machine had just completed a 1,750,000-yard job in July and was making quite a yardage record on this job. Starting up on August 20, the machine operated 23 days on a single shift and moved 151,020 yards. A record run of 8,141 yards was moved on September 1, and 8,065 yards on September 2. A total of 16,206 yards in 20 hours. Joe McAlister is the boy who hauled the dirt in, and Y. B. Turner is the lad who looked after the engines. McAlister is 23 years old, and Turner voted for the first time this year. This seems to further prove the old adage, "Youth will be served." Mr. George C. Little, United States foreman, is in charge of Tower Machine C-6, and both he and the members of his organization are to be complimented for the remarkable showing which they have made.

St. Louis Items

BY A. B. KOENIG

E. L. House, a prominent fence contractor for a score or more of years in this part of the country, died at Dallas, Texas, on September 13th. He was buried at his home, Marianna, Arkansas.



VERTICAL BOILERS
for
Excavating Machinery

Any Size — Any Type — Any Service.

Your conditions may be special. We can help you get results.

JOHNSTON BROS., Inc.

Specializing in Boilers for Contractors' Equipment

FERRYSBURG, MICHIGAN

For convenience in making inquiry use postal inserted in this number.

The RUTH DREDGER—*Digs, Builds, Cleans!*

Bulletin No. 8 Is Ready—Send for Yours Today
I am interested in
Irrigation Ditches
Drainage Canals
Reclamation Work
Maintaining Ditches
Have Old Machine
Need Repair Parts
I Would Like to Sell the Ruth
Name
Address
Firm
SALT RIVER VALLEY PROJECT PHOENIX, ARIZONA
SAN JOAQUIN AND KING RIVER IRRIGATION DISTRICT
SALT RIVER VALLEY PROJECT PHOENIX, ARIZONA
U. S. BUREAU OF RECLAMATION NEWELL, S. D.
U. S. BUREAU OF RECLAMATION YUMA, ARIZONA
U. S. BUREAU OF RECLAMATION NEWELL, S. D.
U. S. BUREAU OF RECLAMATION MITCHELL, NEB.

Here Are Pictures Showing What The Ruth Super Crawler Dredger Actually Does

The picture on the left above shows conditions that the usual dredger cannot hope to cope with, at Mitchell, Nebraska. The upper picture on the right shows the clean-cut ditch made by The Ruth Super Crawler Dredger. You will note in the picture the Ruth is still going through without any stoppage by growths of any kind, and it will be readily seen The Ruth Super Crawler Dredger works equally well in water as in dry earth, 'dobe or clay.

The Ruth Super Crawler Dredger Is Essential for the Economic Upkeep on All Reclamation Work.

How many miles of Canals in operation or to be constructed?_____

Is it irrigation or drainage?_____

How many acres reclaimed or to be reclaimed?_____

RUTH DREDGER SALES CORPORATION

P. O. Box 577, Los Angeles, California, U. S. A.

Col. Robert J. Rombauer, 95, who with his brother, the late Judge Roderick E. Rombauer, laid out the preliminary plans for the Missouri Pacific Railroad between St. Louis and Kansas shortly before the Civil War, died here on September 25th at the Lutheran Home, a private institution, on the Morgan Ford road, from infirmities resulting from old age. He was a resident of St. Louis since 1862.

Columbus S. Jones left here for Florida. He is going to spend the winter there.

W. O. Winston and J. H. Ellison of Minneapolis, Minnesota, stopped off here a couple of days on their way to Dallas, Texas, to attend the executive meeting of the associated general contractors of America. Eight St. Louis members of this association, headed by R. L. Murphy, left with the visitors for Dallas.

C. E. Philpott Construction Co. of Pine Bluff, Arkansas, has been awarded the contract for paving about 44 blocks in Russellville, Arkansas, which will cost about $135,000. The company has just completed a large paving contract in that city at a cost of about $175,000.

Guy E. Stanley, one of the organizers of the Fairfax Drainage District in Kansas City, Kansas, on September 25th was made general manager for all the activities of the Woods Bros. Corporation in the Kansas City District. Mr. Stanley for the past year has been in charge of the company's legal work. He will give up all private business practice and devote his entire energies to the Woods Brothers projects.

Mrs. Mary A. Grier, widow of John J. Grier, who founded the eating house system of the Chicago, Rock Island & Pacific Railroad, died September 19th at her home in Kansas City, Missouri. She had been ill for years.

The Illinois Division of Highways on September 19th announced awarding of the contract for construction of Section 16A, Route 31, Fulton County, Illinois, to the Keokuk Quarry & Construction Co. of Keokuk, Iowa. The contract price is $19,099.60. This section is an 18-foot pavement through the village of Astoria. The village has also awarded a contract for widening this pavement.

C. E. Jennings was awarded a grading contract by the Frisco Railroad in Kansas.

Gierke & Clelland write us from Dana, Illinois, that they have a machine outfit with tractor idle.

T. M. Coleman wants work for a small fresno outfit. Dana, Illinois, will catch him.

M. M. Small, Lincoln, Illinois, was awarded the contract for building three culverts on the county line between Sangamon and Logan Counties, Illinois.

J. P. Sparks, Kirkwood, Missouri, was awarded in the neighborhood of 50,000 yards of state highway work near West Alton, Missouri.

Scott Mitchell has resigned his position as city manager of Boulder, Colorado, and is going back in the contracting business with J. A. Fitzpatrick. Both were here the other day on their way to look over some work in Alabama and expect to take a trip through Florida before returning.

Increase Your Profits

By Operating a Night Shift

You can easily install a lighting plant of the latest design on your shovel or dragline — no electrician is required.

Simple to operate — no storage batteries.

SPECIAL!

We have a small independent plant for lighting camps, etc. Press a button or turn on any lamp and generator starts immediately. Stops automatically when lights are turned off.

BUCYRUS COMPANY
SPECIALTY DEPARTMENT
SOUTH MILWAUKEE, WIS., U. S. A.

For convenience in making inquiry use postal inserted in this number.

Canton-Bayard Cut-Off. Narrow-gauge dump cars under the dipper.

One Hundred Per Cent on the Canton-Bayard Cut-Off

Western

That's Why !

EVERY contractor on the Canton-Bayard Cut-Off was found to be using WESTERN 4-yard or 5-yard dump cars. These thoroughly qualified men showed a singular unanimity in their choice of equipment. Why?

Because they know that WESTERN dump cars have a rugged strength that carries them through one tough job after another with their capacity for hard work unimpaired.

Because WESTERN dump cars never delay the job by laying up for repairs — even when conditions subject them to unreasonable demands.

Because there is a name and a reputation behind WESTERN dump cars which has been nearly fifty years in the making.

Western Wheeled Scraper Company

Founded 1877

Earth and Stone Handling Equipment

Aurora, Illinois

For convenience in making inquiry use postal inserted in this number.

C. C. Barnes, 313 Equitable Building, Des Moines, Iowa, has finished his work on the Illinois Central Railroad in Illinois, and wants a grading job suitable for three machine outfits.

John Kenney will finish a road job at Astoria, Illinois. He will have two machine outfits, also a car and shovel outfit idle and wants any kind of grading.

The Walsh Construction Co. are making rapid progress with their Big Four work in Ohio.

Paul L. Fink writes us from Somers, Wisconsin, that he is finishing a hauling job there and will have five Ford dump trucks idle. He wants a job hauling sand, gravel rock, etc.

Shea Bros., Knoxville, Tennessee, have 22 miles of state highway work in Dyer County, Tennessee, to sublet in quantities to suit outfits.

D. C. Armstrong has a concrete and bridge outfit idle at Grantsburg, Illinois. He wants work for it.

The Blythe Brothers, Charley and Tom, have dissolved partnership and divided their outfits. They are going to let their sons get into the contracting game. Charley will spend his time at his home in Tama, Iowa, and Tom at Farina, Illinois. They had a prosperous year and are going to take it easy for a while.

Pete Shugart has placed his outfit on some extra work on the Illinois Central Railroad at Xenia, Illinois.

Winston Bros. Co. have a couple of track-laying gangs busy on the Missouri Pacific Railroad finishing their contract between Kirkwood and Jefferson City, Missouri.

Clarence Mitchell of the J. H. Flick Construction Co. was with us a day. Nothing new this time.

Cook & Stucker have started a street paving job at Baldwin, Kansas.

Frank Smith has his outfit at work on bridge filling near Perry, Kansas.

Chas. Gould completed his grading contract on the Wabash Railroad in Michigan. He moved his outfit on to a similar job at Montpelier, Ohio, and expects to be busy there for a couple of months.

R. T. Amis has an outfit at work on the Chicago & Alton Railroad in Kansas City, also has another one on highway work near Poncas City, Oklahoma.

Contractors when in want of work or labor for their outfits write, wire or phone Koenig Labor Agency, 612 Walnut Street, St. Louis, Missouri, or 501 Delaware Street, Kansas City, Missouri.

J. L. Simmons writes us from La Plata, Missouri, that he has two grading outfits idle that he wants work for.

Tibbetts & Tibbetts Co. are finishing their state highway work near Pacific, Missouri.

Canada

Montreal and Vicinity

BY J. M. WARD

Thos. Cozzolino has erected a crushing plant and is crushing rock for the concrete work in connection with the mill foundations for the Aluminum Company.

QUALITY

The success this tooth has enjoyed and the constant replacement of other styles by it furnishes the greatest proof of its worth.

SERVICE

Most builders of steam shovels can meet your requirements by shipments from stock. If they cannot we can.

Write for Exchange Proposition

TAYLOR-WHARTON IRON & STEEL COMPANY

High Bridge, New Jersey

Long-lived on Hard Work —G-E Motors

From the power-shovels, cableways, mixers and cranes down to the smallest pump on the job—G-E Motors and Control meet every requirement of the modern construction plant.

Engineers and contractors are turning more and more to electricity to meet their needs for economy, flexibility and safety. G-E equipment has won high standing among them for dependable operation on their jobs.

G-E engineers co-operate with leading shovel manufacturers in the application of G-E Motors and Control to electric shovels.

GE

8C-5

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN ALL LARGE CITIES

For convenience in making inquiry use postal inserted in this number.

Louis Ott has both his Bucyrus 20-B high-lift shovels in operation. One of them, operated by Jim Cronin, is engaged in a real estate development in Montreal, and the other one is run by U. Normand, who is working on street grading.

Gorman & Peckham are building five miles of railroad for the Aluminum Company of Canada. This is a line from the present Canadian National siding into the site of the hydro-electric development at Chute a Caron. They are operating a model 61 Marion shovel and a Bucyrus 20-B, Vulcan locomotives and Schell and K. & J. 6-yard cars.

We had a visit from Phil Rouse who was on his way to set up the Bucyrus 20-B for Gorman & Peckham.

The Aluminum Company of Canada has made a start on the preliminary work in connection with their new development at Chute a Caron. They are at present putting in the foundations for the mill buildings. They propose to have a new townsite around all their operations to be known as "Arvida," and it is expected that there will be a population of from 25,000 to 30,000 in this district within the next two or three years. This fall they are only going to build part of one unit on the hydro development, and will continue the rest of this big operation next spring. F. H. Cothran and his staff, from the Quebec Development Company, will take charge of the hydro-electric development for the Aluminum Company.

W. J. Collins is going to operate the new Bucyrus 20-B shovel for Gorman & Peckham at Kenogami.

Leo Mascioli of Timmins, Ontario, has a contract with the Hollinger Consolidated Gold Mines, and is operating an Erie and Model 28 Marion shovel.

Toronto and Vicinity

BY C. F. ENGLAND

E. O. Leahy, Limited, and the Atlas Construction Co., Limited, have been awarded contract for the construction of Section Six of the New Welland Ship Canal. This work includes some millions of yards of excavation and considerable concrete work.

The Rouyn Railway Company recently awarded contract to Chambers, McQuigge & McCaffrey Co. of Toronto and Foley Bros. of St. Paul, Minnesota, for railway construction.

We recently visited the work of Kilmer & Barber, Limited, New Welland Ship Canal. This work consists of placing concrete cribs in the Port Colborne Harbor, together also with other concrete work. The work is in charge of Mr. C. H. Bell and is progressing very nicely.

T. A. Brown Co., Limited, have made a start on their work on the Youngs Point job, Trent Valley Canal.

TRADE NOTES

The Standard Soapstone Corporation has been organized under the laws of the State of New York, with a capitalization of $1,575,000, of which $1,000,000 is paid in. The company has taken over the entire assets and business of the Phoenix Stone Company.

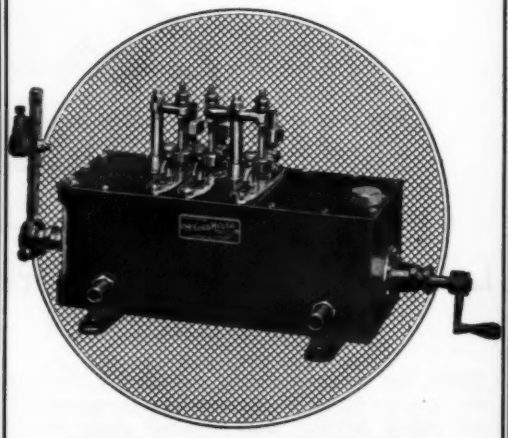
The new company will engage in the quarrying, manufacture, sale and installation of soapstone products. The entire operation will be completed and the

A McCord Force Feed Lubricator Will Keep Your Shovel on the Job

A McCord force feed lubricator installed on your steam shovel now will insure more continuous operation. Dependable force feed lubrication prevents shutdowns and delays, it gives more hours on the job.

McCord force feed lubricators are used as standard equipment by the largest and best-known steam shovel builders and they will be installed on any shovel at your request.

Put a McCord lubricator on now and be assured of dependable lubrication for the life of your shovel.

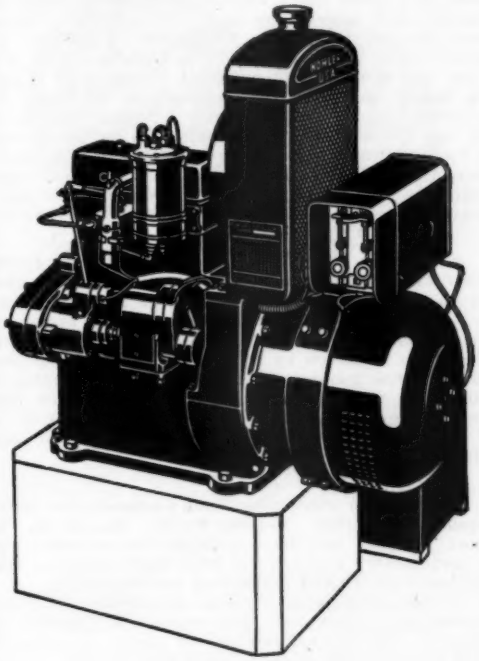


McCord Class B. A. Force Feed Lubricator

McCord Radiator & Mfg. Co.
Detroit, Michigan

McCord
force feed
Lubricators

For convenience in making inquiry use postal inserted in this number.



Light and Power Right on the Job

Electricity is necessary on most excavating jobs to secure the most in service from equipment and speed the work to completion. In outdoor operations, when necessity demands working of night crews, the Kohler Electric Plant will illuminate the scene of operations so that work can go on as in daylight.

No electric plant answers the need for electric service so completely as the Kohler Electric Plant.

It is compact — occupying a space only 16¼" x 34¾", which means that it can be mounted on the platform of an excavator.

It is without batteries — eliminating an expensive and troublesome feature. A small automobile-type starting battery is used.

It generates 110-volt current, which will operate the air compressor, pump, power tools, and supply current for all lighting purposes.

Ask us to send you our booklet "The Principle and The Proof."

Fort Hall Project, Utah.
The Kohler Electric Plant used.

KOHLER OF KOHLER

KOHLER CO., *Founded 1873*, KOHLER, Wis.
Shipping Point, Sheboygan, Wis.

For convenience in making inquiry use postal inserted in this number.

quarries will be producing before the end of the year.

The company has completed the erection, at the cost of $400,000, of mills with steel and glass construction equipped with standard and special machinery for soapstone production. In addition to a number of houses completed during the last year, construction is under way of a new town site, including modern homes and stores for company employees. Many houses have already been completed, while other dwellings and a clubhouse are in the course of construction.

It is estimated that the property of the company contains 25,000,000 cubic feet of soapstone.

The officers and directors of the company are W. Wallace Benjamin, president and general manager; Charles O. Heydt, secretary-treasurer; Clifton Reeves, vice-president and industrial engineer; F. A. Benjamin; Thomas Fortune Ryan; Michael J. Copps, managing director; Mortimer J. Copps, plant manager; William R. Conklin and Alfred C. B. McNevin.

A one-reel motion picture entitled "Letting Dynamite Do It," has just been made by the Explosives Department of *E. I. du Pont de Nemours & Company, Wilmington, Delaware*, and can be had for distribution on application to the company. The scenes show the use of explosives in many lines of industry and under many conditions. Practically every part of the country is represented with pictures showing the employment of dynamite. There are views of the use of dynamite in the lumber camps of the Pacific Northwest, where the explosive is used to cut off the tops of tall trees and break log jams; also scenes on the Mexican border where a small mountain is converted into railroad ballast through the employment of thousands of pounds of dynamite. Other scenes show how reefs were blasted away in a Florida harbor, building a swimming pool in the East, taking out concrete foundations in the midst of a great plant without so much as breaking a window, and demolishing in a few minutes a disused blast furnace many feet in height. There are also scenes of the use of explosives in building roads in the West, the unusual application of dynamite in chipping out figures on Stone Mountain where the great Confederate Memorial is being built, and then the spectacular feat of completely demolishing an old stone intake in Lake Michigan at Chicago which was a menace to navigation. This one-reel picture is the second volume issued by the du Pont Company showing the use of dynamite in various operations throughout the country.

M. J. Finn Pump Mfg. Co. of Pittsburgh, Pennsylvania, has recently placed on the market a new motor-driven centrifugal pump, which by its design eliminates 32 parts, and which through its application to the heating system is expected to make a great fuel saving. The pump is driven by a 14 h. p. Westinghouse motor, direct current connected through a flexible coupling, and will pump water from cisterns or streams to farms, homes, camps or commission buildings without the use of tank. For further information address the manufacturer.

The Chicago Pneumatic Tool Company has effected arrangements with Motoren-Werke, Mannheim, Germany, whereby they have acquired the exclusive rights to manufacture and sell the Benz Solid Injection Diesel Engine in the United States and Canada.

To any one familiar with the development of internal combustion engines, the Benz requires no introduction. However, for the information of those interested, the Benz is one of the world's best-known engines, is of the

THE BEST CHAIN
IS CHEAPEST IN THE END

Delays on the job, encountered with chain that is "just as good," make the price of the "cheap" product absolutely prohibitive to the contractor who knows his costs.

Taylor-Mesaba chain, built with 52 years' experience behind each link, is the cheapest in the long run.

Write for Catalog E.

S. G. Taylor Chain Company
Established 1873
641 Marquette Building, Chicago, Illinois

TAYLOR
MESABA
STEAM SHOVEL CHAIN

For convenience in making inquiry use postal inserted in this number.

Cut your Haulage Costs with KOPPEL CARS

Poor cars are only an added burden to any plant — repair and lubricating costs —loss of time—can be avoided by specifying Koppel Cars and Track equipment.

Write today for our latest bulletins or tell us your problem and let us advise you.

Our Sales Offices in New York, Pittsburgh, Chicago and San Francisco are at your disposal.

FROGS SWITCHES AND RAILS

KOPPEL

KOPPEL INDUSTRIAL CAR AND EQUIPMENT COMPANY
KOPPEL ~~~~~ PENNA.

DIGGING CLAMSHELLS

Mud, muck and boulders all look alike to the Dreadnaught — and the sight of one of these husky clamshells working is convincing evidence that Blaw-Knox Buckets "have the guts."

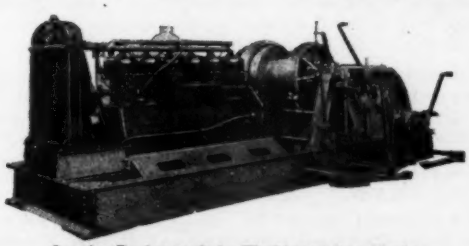
If you have a digging job or a material handling job —

We Have the Bucket!

BLAW-KNOX COMPANY
633 Farmer's Bank Building
Pittsburgh, Pa.

BLAW-KNOX

TWIN CITY ENGINES

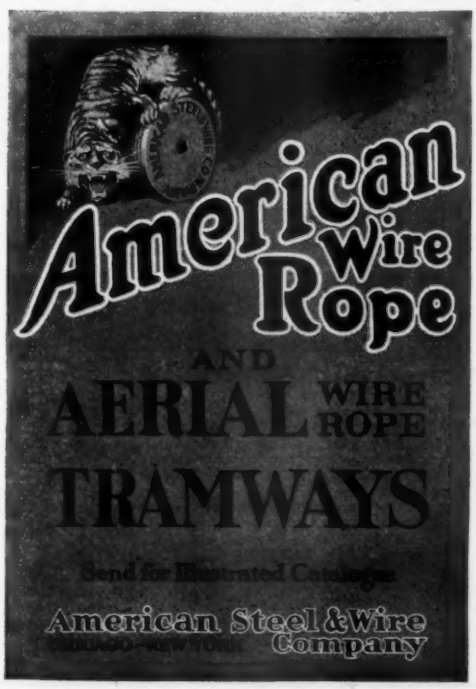


Logging Engine made by Washington Iron Works equipped with Twin City Engine.

OTHER Twin City users include: Austin Machinery Corp., Baldwin Locomotive Works, Buckeye Traction Ditcher Co., Bucyrus Co., The Parsons Co., Northwest Engineering Co., The Harnischfeger Corp., Pennsylvania Pump & Compressor Co., Star Drilling Machine Co., Willamette Iron & Steel Works, etc. Specify Twin City Engines on *your* equipment. Sizes 35 to 140 H. P. Write for literature.

TWIN CITY COMPANY, Minneapolis, Minn.
Heavy Duty Engine Manufacturers Since 1903

"BUILT TO DO THE WORK"



For convenience in making inquiry use postal inserted in this number.

vertical, multiple cylinder type, built on the four stroke principle.

Many advantages are claimed for the Benz Engine, among them a very simple and clear design, which eliminates the use of a high-pressure compressor, an injection cylinder with high-pressure pipe line and injection valve.

There is no ignition device, which eliminates the use of a rather delicate apparatus as well as spark plugs, cables, etc.

Due to its having automatic regulation and its simple operation it can be operated by men who have had very limited engine experience, which tends to lower the cost of operation.

The Benz Engine will operate on all kinds of petroleum and its derivatives, such as gas oil, kerosene, crude oil, parafine oil and lignite tar. Regulation is effected by a precision governor which acts on an admission valve of the fuel pump, the quantity of fuel delivered being strictly in proportion to the load on the engine.

The fuel consumption is said to be much lower than in any other engine.

The Pyramid Coal Corporation, Curwensville, Pennsylvania, uses a Holt tractor equipped with a scraper attachment for cleaning the coal vein after stripping the overburden and before digging the coal. We understand that this has proven a very satisfactory means and eliminates a good deal of hand shoveling.

REVIEW OF BOOKS and CATALOGS

We shall be glad to review, in this column, such books and catalogs as are sent to us.

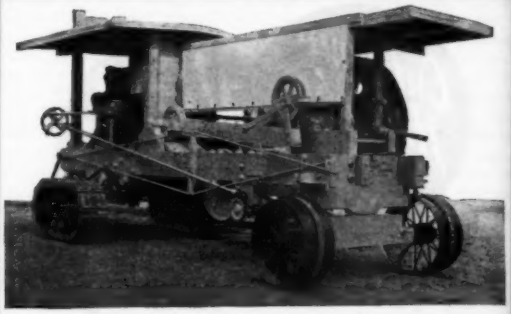
Mead-Morrison Manufacturing Company, Boston, Massachusetts, has recently issued their Catalog Number 26 describing the Mead-Morrison "55" Tractor. The bulletin, 8½ x 11, 32 pages and cover, describes in detail, illustrates features and shows at work this gasoline machine of thirty-five drawbar horsepower. Copy may be had free from the manufacturer.

AUTOMATIC SWITCHING EQUIPMENT FOR RECLOSING SERVICE ON 275-VOLT D. C. CIRCUITS — 8½ x 11, twenty-eight pages and cover, illustrated, describes equipment and its uses, gives wiring diagrams, and list of users. Of interest to coal-mining men. Ask *General Electric Company, Schenectady, New York,* for Bulletin GEA-24.

STANDARD MILBURN REGULATORS — 8½ x 11, eight pages illustrated. Descriptive of Milburn Standard Regulators. Users of gas-welding and cutting outfits should write *The Alexander Milburn Company, 1416 West Baltimore Street, Baltimore, Maryland.*

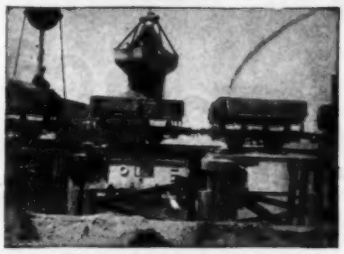
STROUD 5¼-YARD WAGON

The Little Red Wagon Mfg. Co.
Omaha, Nebraska



The "CLIPPER" Blast Hole Drill
New Model
There is a reason why the "CLIPPER" predominates in the blast hole field.
No Cogs in Front End Mechanism
This machine is simple, durable, and easily maintained. It is made for steam, electric, gasoline or air drive. (Also made in Round Wheel.)
Write for Catalog
The Loomis Machine Company
(Established 1842)
K Street, Tiffin, Ohio

Hayward Buckets



Closely linked with the progress in handling methods

Modified and improved to meet the demand for greater loads and faster operation, Hayward Buckets are recognized as an important part of equipment wherever the rapid movement of materials is essential.

Hayward Engineers are always glad to furnish photographic evidence and convincing testimony of the economy of Hayward Buckets on all classes of work.

The Hayward Company
52-54 Church Street, New York, N. Y.

Builders of Clam Shell, Orange Peel, Drag Line, and Electric Motor Buckets; Dredging, Excavating, Coal Handling Machinery.

3102-Y

For convenience in making inquiry use postal inserted in this number.

Keep up with Your Job

LOWER COSTS, greater safety and increased all 'round efficiency are resulting from the rapid advancement which is taking place in explosives engineering. At mines, quarries and on construction work throughout the world improvements in methods of drilling, blasting, loading, and transporting of coal, ore and stone are constantly being made, and every month some of these are reported in "The Explosives Engineer", a unique, illustrated periodical devoted to these important subjects.

NEW OFFER

Less than 3c a Month

WE are making a new offer of a three years' subscription to "The Explosives Engineer" for one dollar postpaid anywhere in the United States. This will apply to all of our present readers as well as to new subscribers. Each issue is exhausted shortly after publication, so it is advisable to send in subscriptions at once in order to secure the December number. Attach a dollar bill to the coupon and keep abreast of developments in mining, quarrying and construction for 36 months.

THE EXPLOSIVES ENGINEER
WILMINGTON DELAWARE

The December Issue

Contractors will be interested in the description of the construction methods in building the Exchequer Dam, on Merced River, in California. The site was selected at a narrow point of the Yosemite Valley, through which run the main tracks of the Yosemite Valley Railroad, daily carrying twenty-two trains. So that train service would not be interrupted, the dam was constructed with a temporary railway tunnel, until the road is changed. Insley towers and derricks are extensively used by the contractors. A portrait and biography of Arthur S. Bent, president of the constructing company, and past president of the General Contractors of America, are in the same number.

Since the close of the World War, the wave of general industrial activity in Austria has been the cause of a widespread use of explosives. In this issue, Rudolf Feuchtinger, of Vienna, describes drilling and blasting methods in his country.

"The Desert Prospector" will be depicted by reproduction of a series of pencil sketches drawn for *The Explosives Engineer* by W. D. White.

The importance of producing the maximum quantity of lump coal in the majority of the bituminous coal mines of this country has directed much attention to this phase of the industry. B. L. Lubelsky, explosives engineer of the Washington Gas Coal and Associated Companies, gives the blaster some important information in his article discussing the advantages of undercutting in the production of lump coal.

Regular features of every issue include the popular Blaster Bill and Wilyum Jan cartoons, and an index of the month's books, articles, and patents on drilling, blasting and allied subjects.

[MAIL THIS COUPON]

The EXPLOSIVES ENGINEER,
949 Delaware Trust Bldg.,
Wilmington, Delaware

Subscription Rates

United States	3 yrs. $1.00	1 yr. $ .50
Canada, Newfoundland, and Australia	1 yr.	1.50
Other foreign countries	3 yrs. $2.00	1 yr. 1.00

I am enclosing $1.00 for a 3 years' subscription to The Explosives Engineer, to begin with the November issue if it is not already exhausted. (This rate applies only to the United States.)

Name .....

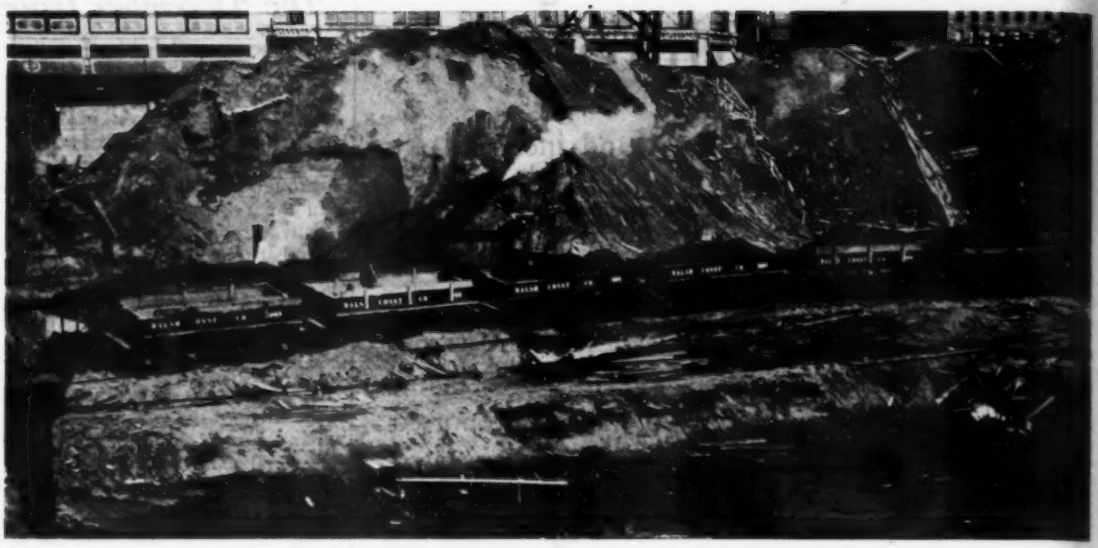
Firm Name .....

Street .....

City ..... *State* .....

Please send me conditions covering the National Safety Competition for The Explosives Engineer Trophy. ☐

UMI



Operations at the end of 1925. Note the retaining wall in the background.

Site of Cleveland's New Union Station. The Public Square is in the immediate foreground; the building on the right is the Hotel Cleveland. This picture was taken early in 1924. Note that at the right the buildings have just been demolished, while from the left-hand section all foundations have been removed.